CLAIMS

1. An Nb-Al alloy powder for electrolytic capacitors, comprising particles having dendritic microstructures principally containing $NbAl_3$, Nb_2Al, Nb_3Al, or Nb and matrices containing Al or eutectic structures containing at least two selected from the group consisting of $NbAl_3$, Nb_2Al, Nb_3Al, and Nb, the particles being covered with dielectric layers when the powder is processed into an anode of an electrolytic capacitor, the matrices surrounding the dendritic microstructures.

2. The powder according to Claim 1, wherein the Nb-Al alloy has an aluminum content of 46% to 90% on a mass basis, the dendritic microstructures principally contain $NbAl_3$, and the matrices contain Al.

3. The powder according to Claim 1, wherein the Nb-Al alloy has an aluminum content of 27% and more, and less than 46% on a mass basis, the dendritic microstructures principally contain $NbAl_3$, and the eutectic matrices contain $NbAl_3$ and Nb_2Al.

4. The powder according to Claim 1, wherein the Nb-Al alloy has an aluminum content of 14% and more, and less than 27% on a mass basis, the dendritic microstructures principally contain Nb_2Al, and the eutectic matrices contain $NbAl_3$ and Nb_2Al.

5. The powder according to Claim 1, wherein the Nb-Al alloy has an aluminum content of 10% and more, and less than 14% on a mass basis, the dendritic microstructures principally contain Nb_3Al, and the eutectic matrices contain Nb_3Al and Nb_2Al.

6. The powder according to Claim 1, wherein the Nb-Al alloy has an aluminum content of 10% and less on a mass basis, the dendritic microstructures principally contain Nb, and the eutectic matrices contain Nb_3Al and Nb, or the matrices principally contain Nb_3Al.

7. The powder according to any one of Claims 1 to 6, wherein the Nb-Al alloy contains at least one element selected from the group consisting of tantalum, titanium, hafnium, zirconium, molybdenum, barium, strontium, and boron.

8. The powder according to Claim 7, wherein the element content is 3% and less on a mass basis.

9. The powder according to any one of Claims 1 to 6, wherein the Nb-Al alloy contains 100 ppm and less of an iron impurity.

10. The powder according to any one of Claims 1 to 9, wherein the dendritic microstructures have a width of 3 μm and less.

11. An electrolytic capacitor comprising an anode prepared by sintering the powder according to any one of Claims 1 to 10.

12. A method for manufacturing an Nb-Al alloy powder including particles that are covered with dielectric layers when the powder is processed into an anode of an electrolytic capacitor, the method comprising a step of quenching a molten Nb-Al alloy having an aluminum content of 27% to 90% on a mass basis to form particles or thin sheets having dendritic microstructures with dendrite arm spacing of 3 μm and less.

13. The method according to Claim 12, wherein the molten Nb-Al alloy is quenched at a rate of 10^{3}° C/sec and more.

14. The method according to Claim 12 or 13 further comprising a step of pulverizing the thin sheets.